

ANNUAL REPORT OF THE OHIO ACADEMY OF SCIENCE

1963

Organized 1891
Affiliated with the American Association for the Advancement of Science

Incorporated 1892

OFFICERS AND COMMITTEES FOR 1963-64

President

CHARLES A. RANDALL

Secretary

WILLIAM F. GAMBILL

Treasurer

RICHARD S. DAVIDSON

Director, Junior Academy

G. GERALD ACKER

President-Elect

RICHARD ANDERSON

Director, Visiting Scientists Program

WILLIAM A. MANUEL

Assistant Director, Junior Academy

ROBERT E. MCKAY

Executive Secretary

JOHN H. MELVIN

Vice-Presidents

A. *Zoology*: W. F. WALKER, JR.

B. *Plant Sciences*: C. W. HEIMSCH

C. *Geology*: G. W. FRANK

D. *Medical Sciences*: To be elected

E. *Physics and Astronomy*: A. B. STEWART

F. *Geography*: J. R. VILLMOW

G. *Chemistry*: D. R. SPESSARD

H. *Science Education*:

MRS. N. M. SNYDER

I. *Anthropology and Sociology*:

O. H. PRUFER

J. *Conservation*: K. N. MORSE

K. *Genetics*: A. G. STEINBERG

Membership Chairmen

A. *Zoology*: A. S. BRADSHAW

B. *Plant Sciences*: CLARA WEISHAUP

C. *Geology*: C. B. MOKE

D. *Medical Sciences*: To be elected

E. *Physics and Astronomy*: A. L. LUTZ

F. *Geography*: H. K. HUTTER

G. *Chemistry*: W. H. HALL

H. *Science Education*: F. R. MORRAL

I. *Anthropology and Sociology*:

W. H. HARLAN

J. *Conservation*: R. W. ALRUTZ

K. *Genetics*: N. S. COHN

COMMITTEES

Executive

C. A. RANDALL, *Chm.*, G. G. ACKER, R. J. ANDERSON, G. W. BURNS, K. E. CASTER,
R. S. DAVIDSON, W. G. GAMBILL, R. A. POPHAM, J. VERDUIN, W. F. WALKER

Nominating

MEMBERS OF THE EXECUTIVE
COMMITTEE

Library

Academy Librarian, MARY D. MCCOY, *Chm.*

JACOB VERDUIN.....Term expires 1965

JANE FORSYTH.....Term expires 1967

Publications

W. G. GAMBILL, *Chairman*

JACOB VERDUIN.....Term expires 1965

JANE FORSYTH.....Term expires 1967

Resolutions

W. E. SINGER, *Chairman*

C. W. HEIMSCH.....Term expires 1965

W. H. CARMEAN.....Term expires 1966

Academy History

Academy Historian, R. W. DEXTER, *Chm.*

Necrology

J. T. MADDOX.....Term expires 1964

R. M. GIESY, *Chm.*.....Term expires 1965

R. M. GEIST.....Term expires 1966

Ohio Flora

T. R. FISHER, *Chairman*

E. L. BRAUN

J. A. HERRICK

G. W. BLAYDES

E. S. THOMAS

CLARA WEISHAUP

Government Advisory Committee

R. P. GOLDTHWAIT, *Chairman*

PAST PRESIDENTS

Education

E. H. BUSH, *Chairman*

Committee being appointed.

Program

VICE-PRESIDENTS AND

SECRETARY, *Chairman*

Research Grants

H. C. EYSTER, *Chm.*.....Term expires 1964

R. H. DURRELL.....Term expires 1965

J. G. OGDEN, III.....Term expires 1966

Local Arrangements

J. D. CRUM, *Chairman*

Committee being appointed.

Academy Representatives

1. On the Joint Administrative Board of The Ohio Journal of Science:

JACOB VERDUIN.....Term expires 1965 JANE FORSYTH.....Term expires 1967

2. On the Executive Committee of the Ohio Biological Survey: D. M. DELONG

3. On the Advisory Board of the Edwin H. and Nellie M. Rausenberger Conservation
Foundation: C. A. RANDALL

THE OHIO JOURNAL OF SCIENCE 63 (4): 167, July, 1963.

4. On the Council of the American Association for the Advancement of Science: G.-H. SMITH, G. G. ACKER (alternate) (Terms expire 1964)
5. Representatives to The Academy Conference: G. G. ACKER, G.-H. SMITH (Terms expire 1964)

The Council for 1963-64

ACKER, G. G.
ALRUTZ, R. W.
ANDERSON, R. J.
BRADSHAW, A. S.
BURNS, G. W.
BUSH, E. H.
CASTER, K. E.
COHN, N. S.
CRUM, J. D.
DAVIDSON, R. S.
DELONG, D. M.
DEXTER, R. W.
EYSTER, H. C.
FISHER, T. R.

FORSYTH, JANE L.
FRANK, G. W.
GAMBILL, W. G.
GIESY, R. M.
GOLDTHWAIT, R. P.
HALL, W. H.
HARLAN, W. H.
HEIMSCH, C. W.
HUTTER, H. K.
LUTZ, A. L.
MCCOY, M. D.
MCKAY, R. E.
MOKE, C. B.
MORRAL, F. R.

MORSE, K. N.
POPHAM, R. A.
PRUFER, O. H.
RANDALL, C. A.
SINGER, W. E.
SMITH, G.-H.
SNYDER, MRS. N. M.
SPESSARD, D. R.
STANSBERRY, D. H.
STEINBERG, A. G.
STEWART, A. B.
VERDUIN, J.
VILLMOW, J. R.
WALKER, W. F.
WEISHAUP, CLARA

REPORT OF THE SEVENTY-SECOND ANNUAL MEETING OF THE OHIO ACADEMY OF SCIENCE

The 72nd Annual Meeting was held on the campus of Central State College, Wilberforce, April 25, 26, and 27, 1963. This was the first meeting of the Academy ever to be held at Central State College.

A total of 585 persons registered for the meetings of the senior division. The local committee on arrangements, under the able chairmanship of Dean John H. Cooper, effectively planned and conducted a most successful event. Special thanks are due also to Dr. Oscar Woolfolk who, upon the illness of Dean Cooper, very ably assumed direction of the work of the committee at a late date.

The Executive Committee, the Council, and the Committee on Election of Fellows met on April 25; their reports are found elsewhere in this Annual Report. On Friday, April 26, the eleven sections held some 23 separate sessions at which were presented 175 programmed papers and symposia. On April 27, a field trip was conducted by the section of Geology.

Throughout Friday, April 26, The Junior Academy sponsored the Fifteenth Annual State Science Day in which students from 263 schools entered 578 projects.

The annual banquet and business meeting were held Friday evening, April 26, with Professor James T. Henry serving as toastmaster. President Charles H. Wesley extended official greetings from Central State College, with the response being made by Dr. Guy-Harold Smith, most recent past-president of the Academy. Dr. Kenneth E. Caster, President of the Ohio Academy of Science, delivered the presidential address, "Habitat, Symmetry, and Phylogeny."

Professor G. G. Acker, Director of the Junior Academy, announced awards for outstanding high school science teachers, the Kreckler Awards to schools of the state, and the State Science Day Award. Recipients of these awards are listed in the report of the Junior Academy, elsewhere in this Annual Report. At the business meeting, officers were elected for the coming year as listed at the opening of this Annual Report; a series of amendments and revisions to the Constitution was adopted. President Caster announced election of Dr. E. Lucy Braun and Dr. Eugene Van Cleef as Honorary Life Members. Thirty-two members of the Academy were announced as newly elected Fellows. Their names and sectional affiliations follow:

Chemistry (G)
ARTHUR C. BREYER
JOHN B. BROWN
PAUL GLASOE
THOMAS S. OEY

Geology (C) (Continued)
CHARLES C. RICH
DONALD R. RICHNER
EUGENE J. SZMUC
DAVID K. WEBB
JOHN F. WHITE

Plant Sciences (B)
KARL L. BRAUN, JR.
DAVID W. NEWMAN
JOHN A. SCHMITT

Conservation (J)
NICHOLAS HOLOWAYCHUK
LINUS B. LOSH
DONALD I. MOUNT
ROBERT R. PATON

Medical Sciences (D)
BERTHA A. BOURONCLE
MATTHEW C. DODD
IRMA EGLITIS
JOHN A. EGLITIS
WALTER J. FRAJOLA
BENJAMIN PASAMANICK
CHARLES G. WILBER

Science Education (H)
F. ROLF MORRAL

Zoology (A)
E. ELOISE WHITWER

Genetics (K)
NORMAN COHN

Geology (C)

MRS. ELIZABETH DALVE
RICHARD A. HEIMLICH
FRANK L. KOUCKY, JR.
LEONARD H. LARSEN

Physics & Astronomy (E)

FRANKLIN MILLER, JR.
DUDLEY WILLIAMS

GEORGE W. BURNS, *Secretary*

REPORT OF THE EXECUTIVE COMMITTEE AND THE COUNCIL

The Executive Committee met May 26, July 7, September 29, November 3, November 30, 1962, January 19, February 16, March 23 and April 25, 1963; the Council met December 1 and April 25.

1. *Meetings of the Executive Committee.*—In addition to attending to the voluminous regular business of the Academy, the *Executive Committee*: appointed Dr. W. A. Manuel to fill the unexpired term of Dr. John Coash as Director of Public Relations; received a grant of \$12,073 from the Southwestern Ohio Industrial Foundation for Science Scholarship Awards; appointed Dr. N. S. Fechheimer to fill the unexpired term of Membership Vice-President of Section K; agreed to move toward Saturdays as State Science Day in 1964 and following years; approved a 1963-64 budget and proposal for continuation of the Visiting Scientist Program; approved purchase of Bodily Injury and Property Damage insurance to cover Science Day and other outside activities of the Academy; accepted the report of the Constitution Revision Committee; accepted a suggestion of the Academy Historian, Dr. Dexter, that a 75th Anniversary Committee be appointed; set dates for the 1964 Western Reserve meeting for April 23, 24, and 25; accepted an invitation of The Ohio State University to hold the Academy's 1966 meeting at that institution; received a \$5000 grant from the Kettering Foundation for the Academy's 1963 program; adopted a 1963 budget; set new figures for bonding of the Treasurer and Executive Secretary; acted to recommend to the Council the names of Dr. E. Lucy Braun and Dr. Eugene Van Cleef as Honorary Life Members; sitting as a nominating committee, drew up a slate of officers to be presented at the Annual Meeting; set dates for the 1965 meeting at Ohio University (April 22, 23, and 24); reappointed Dr. Manuel as Director of the Visiting Scientist Program for 1963-64; reappointed Professors Acker and McKay as Director and Assistant Director, respectively, of the Junior Academy for 1963-64; received grants of \$23,000 (NSF) for support of the 1962-63 Visiting Scientist Program and \$7735 (NSF) for Junior Academy activities.

2. *Meetings of the Council.*—Reports were made by officers and committee chairmen; their annual reports are listed in the pages following. In addition, Council: approved the 1963 budget; approved final drafts of revisions to the Constitution for submission to the membership at the Annual Meeting; approved for submission to the membership at the Annual Meeting the names of Dr. Braun and Dr. Van Cleef as Honorary Life Members; elected the slate of thirty-two Fellow nominees recommended by the Committee on Election of Fellows; and gave final acceptance of The Ohio State University invitation for the 1966 meeting.

GEORGE W. BURNS, *Secretary*

REPORT OF THE TREASURER

Herewith is submitted a financial statement of The Ohio Academy of Science as of December 31, 1962. The statement is a true copy of the financial statement certified by our auditor, Mr. Robert F. Harbrecht, C.P.A., 505 King Avenue, Columbus 1, Ohio. A copy of the auditor's report is on file at the Academy's central office.

THE OHIO ACADEMY OF SCIENCE
EXHIBIT A. COMPARATIVE STATEMENT OF FINANCIAL CONDITION
As of December 31, 1962 and 1961

	ASSETS		
	1962	1961	Increase (Decrease)
CASH			
Checking Account, Huntington National Bank.....	\$ 4,539.68	\$ 994.53	\$ 3,545.15
Insured Savings Accounts, (Schedule A-1).....	47,575.00	10,000.00	37,575.00
Deposit with Securities Broker.....		14,057.26	(14,057.26)
Total Cash.....	\$52,114.68	\$25,051.79	\$27,062.89
Investment Certificate, Modern Finance Co.....	3,000.00	27,000.00	(24,000.00)
Receivables: Interest, Dividends, Misc.....	370.45		370.45
Investments in Common Stocks (Schedule A-2).....	18,029.49	7,943.59	10,085.90
TOTAL ASSETS.....	\$73,514.62	\$59,995.38	\$13,519.24

LIABILITIES AND NET WORTH

LIABILITIES

Accrued Payroll Taxes.....	\$ 412.56	\$ 320.00	\$ 92.56
Advance Payments Not Spent At End of Year:			
National Science Foundation Grants.....	35,057.17	33,033.38	2,023.79
Southwestern Ohio Ind. Foundation.....	10,633.00		10,633.00
Reserve for Contingent Payment.....	325.00		325.00
Total Liabilities.....	<u>\$46,427.73</u>	<u>\$33,353.38</u>	<u>\$13,074.35</u>

DEFERRED INCOME

Dues Received in Advance.....	\$ 2,698.00	\$ 1,496.00	\$ 1,202.00
Administration Fee Received in Advance.....	204.97		204.97
Gifts Received in Advance.....		500.00	(500.00)
Revenues Received, Not Yet Earned.....	<u>\$ 2,902.97</u>	<u>\$ 1,996.00</u>	<u>\$ 906.97</u>

NET WORTH

Research Fund.....	\$ 2,315.80	\$ 2,041.95	\$ 273.85
Endowment Fund.....	481.54	4.00	477.54
Unencumbered Surplus.....	21,386.58	22,600.05	(1,213.47)
Total New Worth.....	<u>\$24,183.92</u>	<u>\$24,646.00</u>	<u>\$ (462.08)</u>

TOTAL LIABILITIES AND NET WORTH.....	<u>\$73,514.62</u>	<u>\$59,995.38</u>	<u>\$13,519.24</u>
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SCHEDULE A-1

CASH DEPOSITS IN INSURED SAVINGS ACCOUNTS
As of December 31, 1962 and 1961

	1962	1961
Cleveland Trust Company, Cleveland, Ohio.....	\$ 7,061.25	
National City Bank, Cleveland, Ohio.....	10,113.75	
Union Commerce Bank, Cleveland, Ohio.....	10,175.00	
Citizens Savings & Loan, Painesville, Ohio.....	10,225.00	
Loveland Mutual Bldg. & Loan, Loveland, Ohio.....	10,000.00	\$10,000.00
TOTAL SAVINGS.....	<u>\$47,575.00</u>	<u>\$10,000.00</u>

SCHEDULE A-2

INVESTMENTS IN COMMON STOCKS
As of December 31, 1962 and 1961

	1962		1961	
	No. Shares Owned	Total Cost	No. Shares Owned	Total Cost
American Telephone & Telegraph Co.....	3	\$ 300.00	3	\$ 300.00
BancOhio Corporation.....	42-4/10	658.54	39	647.64
City National Bank.....	100	5,250.00		
Huntington National Bank.....	50	4,825.00		
Metro-Goldwyn-Mayer.....	100	6,995.95	100	6,995.95
TOTAL COST.....		<u>\$18,029.49</u>		<u>\$7,943.59</u>

(12/31/62 approx. market value \$18,220.00)

EXHIBIT B. STATEMENT OF REVENUE AND EXPENDITURES
For the Year Ended December 31, 1962

REVENUE

Membership dues:		
Individuals.....	\$ 9,477.00	
Corporations and institutions.....	3,000.00	\$12,477.00

Gifts:

Columbus Foundation.....	\$ 500.00	
Columbus Technical Council.....	150.00	
C. M. Goethe.....	50.00	700.00
Junior Academy revenue.....		3,336.54
Interest earned (Schedule B-1).....		1,872.92
Dividend income (Schedule B-2).....		415.80
Administration Fees (N.S.F. & S.O.I.F.).....		4,702.86
Special sales: paper, binders, programs.....		95.75
TOTAL REVENUE.....		\$23,600.87

EXPENDITURES

Salaries—executive secretary and clerical.....	\$13,899.96	
Part-time help and services.....	1,425.86	
Brochures and programs.....	696.95	
Printing and engraving.....	353.70	
Office supplies and expense.....	649.53	
Postage.....	871.33	
Telephone.....	308.51	
Travel.....	287.45	
Payroll Taxes.....	338.97	
Outstanding teachers award.....	129.00	
Other awards.....	59.45	
Other Costs.....	506.93	
Newsletter.....	1,482.78	
<i>The Ohio Journal of Science</i>	3,454.33	
Junior Academy Expense.....	811.79	
TOTAL EXPENDITURES.....		\$25,276.54
Excess of expenditures over revenue, 1962.....		(\$ 1,675.67)
Interest and dividends received 1962, earned in 1961.....		462.20
Reduction in Unencumbered Surplus.....		(\$ 1,213.47)

RICHARD S. DAVIDSON, *Treasurer*

REPORT OF THE ACADEMY LIBRARIAN

	1961-62	1962-63
Foreign Exchanges.....	414	417
Domestic Exchanges.....	137	138
Totals.....	551	555
NEW EXCHANGES		
Foreign.....	8	12
Domestic.....	2	2
EXCHANGES DROPPED		
Foreign.....	4	9
Domestic.....	0	1
SPECIAL PAPERS SOLD		
Number of papers.....	3	5
*Revenue.....	\$2.55	\$3.75

*Monies from the sale of Special Papers turned over to the Treasurer.

MARY D. MCCOY, *Librarian*REPORT OF THE JOINT ADMINISTRATIVE BOARD OF
THE OHIO JOURNAL OF SCIENCE

The annual meeting of the Joint Administrative Board of The Ohio Journal of Science was held at Columbus on April 20, 1963. The meeting was called to order by Board Chairman Gambill. Present were Dr. R. H. Davidson, and Dr. M. P. Weiss representing The Ohio State University; Dr. W. G. Gambill representing The Ohio Academy of Science; as well as Dr. David Stansbery and Dr. R. A. Popham of *The Ohio Journal of Science* staff. Due to a misunderstanding concerning the time of the meeting, Dr. Jacob Verduin was not present.

Minutes of the last meeting were approved as read.

Dr. Jacob Verduin was elected Chairman of the Board for the year 1963-64.

The report of the Business Manager was approved as read. This report, which accompanies these minutes, is mainly in the form of a balance sheet for Volume 62. Dr. Popham reported that (1) circulation of the Journal remained at about 2,600, the same as for 1961, (2) the total average cost per page for publishing the Journal increased from \$18.91 for Volume

61 to \$21.52 for Volume 62 and (3) the Journal will probably be able to operate during 1963 on its regular sources of revenue.

The report of the Editor, Dr. Stansbery, was approved as read. The Editor indicated that the Journal, which was several months behind schedule a year ago, is again on schedule. The March, 1963 issue came off the presses during the latter part of the month, and was distributed early in April. Most of the May issue is now in galley proof. The editor is continuing to work toward an improvement in the distribution date. Processing of manuscripts is now current and as a result authors submitting manuscripts for publication can expect prompt publication. If the manuscript is submitted in good form, the reviewer's recommendations for revisions are not extensive, and if the author revises his manuscript promptly, galley proof can be sent to the author within three months from date of receipt of the manuscript.

Acting on a suggestion by Dr. Weiss, the Board voted to express its thanks to reviewers of manuscripts by listing their names and the number of papers reviewed by each in each November issue of the Journal.

Dr. Gambill appointed all members of the Board residing in the vicinity of Columbus to a committee, chaired by Dr. Davidson, which is to seek nominees and make recommendations to the Board Chairman of persons qualified and willing to serve as Associate Editor. It is anticipated that the Associate Editor would perform the same kinds of duties as the Editor.

The matter of publication of abstracts of papers presented at the Annual Meeting of The Ohio Academy of Science was discussed. The Joint Administrative Board unanimously recommends that abstracts in the form of scientific notes and short papers be submitted to the Editor. Vice Presidents of sections are invited to encourage the authors of outstanding papers to make such contributions to the Journal.

The Board gave its permission for the Editor to require abstracts of all full length papers published in the Journal and to alter the format of the Journal to accommodate them.

The following staff members were elected for the year 1963-64. Dr. David Stansbery, Editor and Dr. R. A. Popham, Business Manager. Dr. Stansbery then announced the reappointment of Dr. T. H. Langlois as Book Review Editor.

Dr. Popham, who as served as Business Manager and Secretary of the Board since May 5, 1949, asked to be relieved of his duties as soon as the Board is able to select a successor.

There being no further business, the board adjourned.

RICHARD A. POPHAM, *Secretary of the Board*

THE OHIO JOURNAL OF SCIENCE

BALANCE SHEET

	Vol. 60 Fiscal Year 1/1/60 2/12/61	Vol. 61 Fiscal Year 2/12/61 2/19/62	Vol. 62 Fiscal Year 2/19/62 12/31/62
RECEIPTS			
Bank balance at beginning of period.....	\$ 2,686.20	\$ 3,226.40	\$ 4,432.42
O.S.U.—paid for subscriptions.....	3,000.00	3,000.00	3,000.00
O.A.S.—Paid for subscriptions.....	2,292.50	2,961.00	2,963.00
Non-members—Paid for subscriptions.....	755.00	970.50	593.50
Separate numbers, volumes and index sold.....	559.45	901.15	553.55
Reprints.....	200.15	303.45	842.25
O.A.S.—paid ½ cost of plates.....	429.35	453.30	221.54
O.A.S.—paid for annual report.....	219.38	234.60	269.79
Miscellaneous.....	187.80	2,480.00	3,000.00
Advertisements.....	637.61	279.60	205.02
O.A.S.—gift.....	500.00	0.00	0.00
	\$11,467.44	\$14,810.00	\$16,081.07
EXPENDITURES			
Spahr and Glenn—printing O.J.S.....	\$ 6,174.96	\$ 6,411.81	\$ 5,835.05
Engraving—plates.....	917.07	442.48	627.29
Postage and express.....	278.90	349.58	374.68
Labor.....	4.75	0.00	7.50
Editor's office.....	338.27	403.50	396.50
Office expenses and bank charges.....	28.44	94.80	158.58
Advertising of the O.J.S.....	15.00	15.00	15.00
Reprints.....	74.65	163.53	779.83
Mailing envelopes and forms.....	360.05	0.00	335.11
Refunds.....	6.50	0.00	92.75
Miscellaneous.....	42.45	2,496.88	3,000.00
Bank balance at end of period.....	3,226.40	4,432.42	4,458.78
	\$11,467.44	\$14,810.00	\$16,081.07
Cost of supplying one volume of six numbers.....	\$3.079	\$2.740	\$2.650

THE OHIO JOURNAL OF SCIENCE

REPORT OF THE EDITOR OF VOLUME 62, 1962
to the Joint Administrative Board
April 27, 1963

Volume 62 of *The Ohio Journal of Science* contained six numbers having a total of 344 pages of which 287.5 pages were devoted to 48 scientific papers or notes in ten areas (the designated sections of The Ohio Academy of Science). Short scientific papers in the form of notes were first introduced this year and accounted for five of the contributions. Eighteen pages were used as Journal format (preparation of manuscript, Journal description, and tables of contents) while seventeen pages were devoted to the Annual Report of the Academy. Approximately six pages were utilized for book notices. The same number was used for advertising Academy and Journal announcements accounted for almost two pages. The remaining seven pages constituted the volume index, table of contents, masthead, and staff sheets.

Forty-six per cent of the published papers were from The Ohio State University; thirty-seven per cent were from other sources within the state; seventeen per cent came from authors outside Ohio.

I wish to thank the various members of the Academy, as well as our several colleagues who are not members, for their generous and conscientious service as reviewers of manuscripts. The quality of the Journal is due in large part to their efforts.

DAVID H. STANSBERY, *Editor-in-Chief*

Distribution by Field of Articles Published in Volume 62

Field	Articles		Pages	
	No.	%	No.	%
Anthropology and Sociology	3	6	19	6.5
Chemistry	1	2	4	1.0
Conservation	1	2	7	2.5
Genetics	1	2	8	3.0
Geography	2	4	30	10.5
Geology	2	4	11	4.0
Medical Sciences	0	0	0	0.0
Physics and Astronomy	3	6	28	9.5
Plant Sciences	10	22	65½	23.0
Science Education	2	4	10	3.5
Zoology	23	48	105	36.5
Totals	48	100	287½	100
Allocation of Space in Volume 62				
Scientific Papers and Notes			287½	
Journal Format			18	
Annual Report of The Academy (July)			17	
Advertising			6¾	
Book Notices and Reviews			6	
Volume Index (November)			3	
Volume Table of Contents (November)			2	
Volume Masthead and Staff Sheets (November)			2	
Academy and Journal Announcements			1¾	
Total Pages Printed			344	

REPORT OF THE DIRECTOR OF PUBLIC RELATIONS

The duties of the Director of Public Relations were originally assigned to elected members who arranged for news releases, magazine articles, and talks designed to tell the general public about the work of the Academy. It soon became evident that a great amount of time and effort was necessary to achieve results in this area. One of the objectives for the establishment of a central office was to carry on this work. In recent years the prime responsibility of the Director of Public Relations has been to peek over the shoulder of the Executive Secretary occasionally to see that the image of the Academy was being presented accurately and industriously. As the revised Constitution becomes effective at this Annual Meeting, the public relations function will be assigned completely to the Executive Secretary.

This seems logical since almost every act performed by the Central Office influences the concept that the public holds concerning the Academy and its work. During the past year,

hundreds of newspaper articles appeared describing various activities in which the Academy had a part. The appearance at the Ohio State Fair of 100 outstanding Junior Academy projects was one vast public relations gesture. On two separate occasions, we assisted with world premiers of films about Astronaut John Glenn. The Executive Secretary served on the Industrial Development Committee of the Ohio Chamber of Commerce, the Education Committee of the Ohio Forestry Association, the Vocational Guidance Committee of the Columbus Technical Council, and with other groups in an effort to create a better understanding of our aims and objectives. Several thousand letters as well as brochures, pamphlets, and notices added to the stream of public relations material flowing from the Central Office. To our knowledge, no adverse publicity appeared throughout the year.

It is concluded, therefore, that our public relations effort was substantial, salutary, and at least somewhat successful.

W. A. MANUEL, *Director of Public Relations*

REPORT OF THE JUNIOR ACADEMY, THE OHIO ACADEMY OF SCIENCE

The Junior Academy received direct financial support for its 1962-63 Program from several sources including the following: (1) National Science Foundation a grant of \$7735.00; Battelle Memorial Institute for support of the Kreeker Award, \$1500.00 and plaques; Armco Steel Corporation for scholarship, \$3000.00; Columbus Foundation, \$500.00; and Columbus Technical Council, \$150.00. Indirect support in the form of services, supplies, display space, postage and labor was furnished by each of our ten district centers. All members of the Junior Academy Council donated their time and in many cases travel and out-of-the-pocket expenses for the advancement of Science Day Programs. The only salary payments authorized were for secretarial help and student labor.

Three events of major importance to the Junior Academy occurred during the past year: 1. The Junior Academy sponsored the Junior Science Exhibits at the Ohio State Fair, August 31 to September 3, 1962. 2. Preview showing of the movie "John Glenn Speaks to American Youth" was held in Battelle Memorial Auditorium on February 1, 1963; and 3. The Armco Steel Corporation Scholarship was awarded for the first time. The usual programs of the Junior Academy including The Ohio Academy of Science News; Affiliate Science Days; District Science Days; State Science Days; Special Awards; School and Teacher Recognition; and the Junior Academy Session were carried out with greater dispatch and higher efficiency than ever before.

The National Science Foundation has declined the opportunity to support the Junior Academy program next year.

SECTION I ORGANIZATION

A. DISTRICT CENTERS located at the same colleges and universities as in 1961-62.

B. COMMITTEES:

1. *Judging*: A recommendation of the Judging Committee, R. E. McKay, chairman, and Irving Mayer, chairman for local procurement, that the new (1961-62) judging system be continued for another year, was adopted.

2. *Space Allocation*: Floyd James, chairman. The plan presented by this committee was designed to eliminate the necessity of committee action each year. It provided a formula by which the Director could allocate space. The plan was tabled to permit further study of its ramifications and a substitute plan adopted for 1962-63.

SECTION II AFFILIATED LOCAL SCIENCE DAYS

Local Science Days that affiliated with the Junior Academy prior to January 1, 1962, were required to submit new forms, and 20 were dropped from the roles for not reaffiliating. A total of 183 individual Science Days involving 484 schools are presently affiliated. This represents a net gain of 25 affiliates over last year. Reports received from 104 affiliates show that 80,081 persons viewed projects exhibited by 16,505 students. Administrative help to operate these science days included 964 teachers, 937 students and 2296 judges. When complete results are tabulated, the number of student projects should exceed 20,000.

SECTION III DISTRICT SCIENCE DAY

The Southeast District Science Day at Athens was postponed from April 9 to April 23 because of floods. Several methods by which the number of participants at District Science Day could be reduced and at the same time the quality of the projects presented could be raised, were tried. The methods used included:

1. Junior Academy affiliation required;
2. Elimination of 7th and 8th grade projects;
3. Establishment of school quotas based on science population and;
4. Restriction of Junior High participation.

Total District participation included 6375 students from 697 schools. 290 teachers and 392

students helped administer the district events and 1470 persons were used as judges (200 college professors; 680 high school teachers; 590 industrial and professional persons). 1271 teachers sponsored projects.

1963 DISTRICT SCIENCE DAY DATA

	No. Projects	No. Students	No. Schools
March 23			
Southeast, Ohio University	506	541	43
March 30			
East, Muskingum College	406	429	40
April 6			
Northwest, Bowling Green	770	770	96
North Central, Heidelberg College	1074	1074	100
Northeast, Kent State University	859	859	110
Central, OSU	697	717	86
West, Central State College	579	579	58
Mohican, Ashland College	563	563	42
April 13			
North, Defiance	310	310	22
Southwest, Miami	558	558	92
TOTAL	6322	6400	689

SECTION IV STATE SCIENCE DAY

Central State College has provided ample space in the fieldhouse and Science Building to accommodate the 578 student projects from 263 schools.

Judges will be briefed in the rooms assigned for sectional meetings at 11:00 A.M., Friday, April 26th. The point system of judging which was adopted last year will be used again this year. Entries by district are as follows: Southeast 40; East 25; Northeast 75; North Central 89; Central 91; Southwest 75; West 49; Northwest 76; North 16; Mohican 42.

SECTION V OHIO ACADEMY OF SCIENCE NEWS

Volume XV of the Ohio Academy of News included four issues with a total of 32 pages. Mrs. Clara Kenney, Chillicothe, served as editor for this year. In addition to publishing the activities of the Junior Academy, considerable space in this volume was devoted to affairs of the Academy and the Visiting Scientist Program. The mailing list was completely revised in September and circulation was maintained at 10,000 copies.

SECTION VI SCHOLARSHIP

Scholarship Tests furnished by the Junior Academy were administered to 37 high school senior science students by their teachers or guidance counselors. These tests included: a scientific aptitude test; a test of knowledge of a specific science and a written English test. These tests were scored and interpreted under direction of the Scholarship Committee and are one criterion for the selection of a recipient for the \$3000.00 Scholarship provided by the Armco Steel Corporation. Other criteria considered in selecting the scholarship recipient were: (1) General scholarship (2) Scholarship in science (3) Recommendations from teachers (4) Practical application of scientific knowledge (Science Day Project) (5) Written report on science project.

The above listed criteria will form the basis for recommending students to Ohio colleges for scholarship consideration.

SECTION VII OUTSTANDING TEACHER AWARDS

The Teachers selected to receive Outstanding Teacher Awards for 1963 were:

Southeast: Sister Mary Agatha, OP, St. Mary Central High School, Marietta
 East: Frederick Bretschneider, Cambridge High School
 Northeast: Sister Mary Regina, Ursuline High School, Youngstown
 North Central: Kenneth Hille, Ross High School, Fremont
 Central: Robert Madaffer, Whitehall-Yearling High School, Whitehall
 Southwest: Charles Earman, Eaton High School
 West: M. G. Hoover, Parkway High School, Rockford
 Northwest: Earl Shaffer, Bowling Green High School
 North: None selected
 Mohican: Miss Harryet Snyder, Shelby High School

SECTION VIII KRECKER AWARDS

The Frederick H. Krecer Awards sponsored by Battelle Memorial Institute and carrying a cash stipend of \$150.00 were presented to the following schools:

Southeast: Malta-McConnelsville High School
 Central: Westerville High School
 Southwest: Washington Township High School (Centerville)
 West: Piqua Catholic High School
 Northwest: Morrison R. Waite High School, Toledo
 Mohican: Mansfield Senior High School

SECTION IX STATE SCIENCE DAY AWARD

The 1962 State Science Day Award was won by Eaton Exempted Village High School. 28 schools are eligible to compete for the award this year.

SECTION X STATE FAIR EXHIBITS

The Junior Academy sponsored the Junior Science Exhibits at the Ohio State Fair on August 31 to September 2, 1962. Student projects from State Science Day, National Science Fair Regional Fairs and selected independent science exhibits were displayed for public viewing in the Youth Center. Each of the 97 exhibits received a trophy and a certificate signed by Ohio's astronaut, Colonel John Glenn, who was the feature attraction at "John Glenn Day", Friday, August 31st. Colonel Glenn toured the exhibits; talked to the exhibitors; delivered the feature address; presented trophies to Junior Science Exhibitors; and conducted a conference for Junior Science Exhibitors.

The Junior Science Exhibit was the outstanding attraction at the three day extension of the State Fair. The 1962 State Fair was the first in many years to show a profit, for which the Junior Science Exhibit can claim a measure of credit.

Bell Telephone provided an exhibit of the Telstar Communications Satellite and the National Aeronautics and Space Administration furnished a Mercury Capsule Exhibit and a Space Mobile Demonstration.

A 12 minute documentary color movie, "John Glenn Speaks to American Youth", was filmed by NASA at the Junior Science Exhibits.

The State Fair Committee which operated the Junior Science Exhibits was composed of John Coontz and George Clark, Co-chairmen, Joseph Ralston; Mrs. John Melvin; and the Director of the Junior Academy.

The Junior Academy has been invited to sponsor the exhibits again at the 1963 State Fair.

SECTION XI JUNIOR ACADEMY SESSION

James L. McKinney and Kenton Strickland, both of New Carlisle High School, will preside at the Third Junior Academy Session. This year there will be two sessions meeting at the same time. A total of 20 papers are scheduled.

SECTION XII PERSONNEL

Personnel changes have been made in the Junior Academy as follows:

Southeast—Ralph Walker, Logan High School
 East—Fred Reynolds, Bellaire High School
 Northeast—Ralph Rood, Lakewood High School
 Central—Robert Madaffer, Whitehall-Yearling High School
 Southwest—Charles Earman, Eaton High School
 Northwest—Mrs. Dorothy Fish, Pandora-Gilboa High School
 North—Phil Welty, Defiance High School
 Mohican—Charles Vanderbilt, Mansfield High School

SECTION XIII MISCELLANEOUS

1. Battelle Memorial Institute served as host for the premiere showing of the film "John Glenn Speaks to American Youth" on February 1, 1963.

2. The Ohio Junior Academy has been authorized to send ten teachers and ten students to the National Science Seminars sponsored by the New Mexico Academy of Science. They will be held in Albuquerque, New Mexico May 7-9, 1963.

3. Director, Junior Academy attended the AAAS meeting in Philadelphia, Pennsylvania, December 26-30, 1962.

4. A critique of the 1962-63 operation of the Junior Academy will be held in the University Union, Bowling Green State University, on June 7-8, 1963.

G. GERALD ACKER, *Director*

REPORT OF TRUSTEES OF THE RESEARCH FUND

RESEARCH FUND Balance, January 1, 1962.....	\$2,041.95
REVENUE	
American Association for Advancement of Science.....	400.00
Return by recipient of portion of grant.....	273.85
Total funds available.....	\$2,715.80

GRANTS

E. R. Gerlach, N, N-Bis (Carboxymethyl) Anthranilic Acid as an Elutant of Metal Ions from Anion Exchange Resins.....	\$100.00
Bruce L. Haase, The Flocking Behavior of Crows.....	40.00
Paulette Curtas, Time-Lapse Studies.....	52.00
Paul H. Keller, Devonian Stromatoporoids of Northwestern Ohio.....	50.00
Raymond W. Scadden, Heavy Mineral Analysis of the Whittlesey and Maumee Beach Ridges in Seneca County.....	50.00
Merl Primmer, Biosystematic Study of the Genus, <i>Sonchus</i> (Compositae) in Ohio.....	50.00
Harold L. McFarland, Jr., A Digital Computer with Binary Punched-card Input and Automatic Punch-out Systems.....	58.00
Total Grants.....	400.00

RESEARCH FUND Balance, December 31, 1962..... \$2,315.80
(Use restricted to excess of funds over permanent balance of \$2,000)

H. C. EYSTER, *Chairman*

REPORT OF THE OHIO FLORA COMMITTEE

During the past year significant progress has been made in some areas of the flora project. Volume I, "The Monocots of Ohio" by E. L. Braun is progressing well and is about one-half finished. Dr. Clara Weishaupt is monographing the grasses of Ohio for that project.

The Compositae project passed a milestone with the completion of the monograph "Asters of Ohio" by Mr. John Speer, although a few distributing records still need be recorded. I have been awarded a research grant by the Development Fund of The Ohio State University to continue the monograph of the Compositae. The project is, at present, about half finished. The project should be near completion by the fall of 1964.

A few smaller studies have been finished and, in part, have been published in scientific journals. These manuscripts will be incorporated in the flora project when enough groups have been completed.

T. RICHARD FISHER, *Chairman*

REPORT OF THE ACADEMY HISTORIAN

The Academy Historian attended the International Congress of the History of Science held at Cornell University at Ithaca, New York, during August 26-30, 1962. There he met other science historians and academy historians and discussed matters of mutual interest. There is considerable activity at present in the historical development of science and science academies with special reference to their impact on scientific advancement and its importance to society.

In the September issue of *The Ohio Journal of Science* (62(5): 274-280), the Academy Historian published a report entitled, "Conservation and the Ohio Academy of Science—an Historical Review" which he had presented to the Section of Conservation at the Toledo meetings in 1962.

Given below is a compilation of vice-presidents in charge of the various sections who served The Ohio Academy of Science since 1932. The presidents, secretaries, and treasurers have already been compiled from 1892-1958 (*Ohio J. Sci.* 41(4): 301; 58(4): 259), and other officers compiled from 1892-1931 (*ibid.* 31(4): 196-198).

VICE-PRESIDENTS (IN CHARGE OF SECTIONAL MEETINGS)

- 1932. J. P. Visscher, A. T. Evans, E. M. Spieker, S. Tashiro, H. B. English, F. G. Tucker
- 1933. W. C. Kraatz, B. S. Meyer, C. Ver Steeg, F. A. Hitchcock, L. D. Hartson, A. A. Atkinson, G. D. Hubbard
- 1934. N. F. Howard, O. T. Wilson, W. A. P. Graham, R. A. Kehoe, R. S. Uhrbrock, R. L. Edwards, R. Peattie, W. L. Evans
- 1935. R. S. McEwen, O. L. Inman, W. Berry, J. B. Brown, F. N. Maxfield, C. E. Howe, G. W. Conrey, C. S. Adams
- 1936. D. F. Miller, G. W. Blaydes, G. A. Stewart, C. A. Doan, J. R. Patrick, C. W. Jarvis, G. H. Smith, K. G. Busch
- 1937. A. W. Lindsey, C. E. O'Neal, F. Foreman, R. A. Knouff, G. C. Myers, G. E. Owen, R. B. Frost, C. E. Boord
- 1938. W. Spencer, R. A. Dobbins, J. L. Rich, B. K. Wiseman, H. E. Burt, D. C. Miller, F. J. Wright, W. C. Fernelius
- 1939. R. A. Hefner, P. B. Sears, W. S. Cole, L. F. Edwards, J. R. Patrick, L. E. Smith, F. A. Carlson, H. V. Moyer
- 1940. J. W. Price, L. Lampe, O. C. Von Schlichten, G. M. Curtis, F. C. Dockeray, R. Lambert, G. D. Hubbard, P. Rothenmund, L. Brand

1941. H. Hibbard, F. O. Grover, C. A. Lamey, R. Elliott, P. E. Fields, M. L. Pool, C. G. Shatzer, F. E. Ray, O. L. Dustheimer, C. W. Jarvis
1942. J. P. Visscher, C. E. Taft, G. B. Barbour, P. C. Kitchin, H. Edgerton, R. S. Shankland, A. J. Wright, W. Manuel, C. O. Williamson, C. W. Jarvis
1943. R. M. Geist, C. J. Alexopoulos, K. E. Caster, S. W. Chase, L. D. Hartson, R. L. Edwards, R. B. Frost, R. G. Hood, R. C. Hildner, P. Dye, H. C. Shetrone
1944. H. R. Eggleston, F. S. Howlett, J. W. Wells, E. W. E. Shear, A. C. Anderson, E. H. Johnson, C. C. Huntington, H. J. Garber, R. E. Manchester, P. Dye, W. Lipkind
1946. M. Boesel, W. B. Steidtmann, G. W. White, L. F. Edwards, A. G. Bills, C. W. Jarvis, J. R. Beck, R. G. Bossert, E. I. Yowell, P. Dye, R. G. Morgan
1947. W. C. Beaver, C. J. Willard, K. C. Cottingham, N. Hoerr, H. A. Toops, H. P. Knauss, A. J. Wright, R. V. Sinnett, F. G. Detweiler
1948. R. W. Dexter, J. A. Herrick, J. J. Wolford, C. M. Osborn, J. Vaughn, R. L. Edwards, F. J. Wright, W. M. Burgess, R. E. Manchester, J. W. Bennett
1949. W. C. Stehr, E. T. Bodenberg, M. T. Sturgeon, W. K. Hale, S. L. Pressey, W. R. Pyle, E. E. Eisen, W. A. Everhart, R. E. Manchester, P. W. Hyde, J. N. Spuhler
1950. W. F. Hahnert, J. T. Stanfield, R. J. Bernhagen, I. D. Puppel, A. G. Bills, M. L. Pool, C. M. Wilson, R. G. Bossert, L. P. Cummins, H. C. Hulme, F. L. Utley
1951. G. D. Morgan, C. C. Allison, J. O. Fuller, C. A. Angerer, C. O. Mathews, H. V. Knorr, H. F. Raup, G. L. Orr, C. H. Heinke, H. Ellinger, K. H. Wolff
1952. A. N. Solberg, F. J. Bacon, C. N. Savage, E. R. Hayes, G. Hendrickson, A. L. Lutz, L. R. Fletcher, B. M. Norton, C. H. Heinke, C. T. Hathaway, E. L. Reynolds
1953. W. C. Kraatz, H. C. Eyster, R. P. Goldthwait, G. J. Hamwi, G. A. Kelley, W. R. Koch, C. L. Dow, E. R. Caley, L. Shetler, C. Riser, W. H. Sassaman, F. H. Glenn
1954. A. Peterson, E. F. Paddock, H. F. Donner, H. G. Schlumberger, W. H. Shaffer, M. Danklefsen, D. R. Clippinger, L. L. Lowenstein, C. E. Hoel, A. C. Mahr, C. S. Johnson
1955. J. A. Miller, A. H. Blicke, J. M. Schopf, E. H. Ellison, L. R. Wylie, M. Danklefsen, W. F. Kieffer, V. R. Strahler, R. S. Baby, K. W. Hunt
1956. T. H. Langlois, R. L. Walp, J. H. Melvin, R. W. Stacy, W. E. Singer, J. T. Maddox, J. F. Corwin, J. W. Wargo, M. Lovenstein, R. R. Findlay
1957. P. J. Seyler, G. W. Burns, G. H. Crowl, J. J. Jacoby, J. W. McGrath, L. B. Karnes, J. H. Buckingham, C. Kenney, L. Estel, C. V. Riley
1958. W. D. Stull, A. G. McQuate, J. R. Coash, K. P. Klassen, H. H. Loudon, E. G. Weston, C. E. Ronneberg, P. Dye, C. G. Swanson, E. C. Myers
1959. T. C. Surrarrier, J. Verduin, W. A. Rice, L. C. Hunsicker, M. L. Pool, J. F. Lounsbury, G. H. Brown, W. R. Zeitler, D. P. Irish, I. I. Dickman
1960. C. C. Davis, R. W. Long, C. Cohen, R. H. Durrell, C. G. Barber, H. N. Maxwell, H. L. Hunker, F. L. James, I. Slesnick, S. Newman, E. H. Dustman
1961. D. J. Borror, D. S. Dean, R. H. Bond, R. A. Kehoe, P. B. Taylor, J. L. Thompson, E. B. Rosser, C. Riser, F. F. Miles, W. Carmean, L. O. Gilmore
1962. L. S. Putnam, W. G. Gambill, J. Forsyth, E. W. E. Shear, C. A. Randall, E. H. Bush, R. G. Johnson, P. Read, D. G. Dean, R. B. Redett, E. F. Paddock
1963. E. E. Dickerman, K. J. Norstog, F. R. Nave, E. Ogden, E. L. Jossem, W. N. Harris, L. P. Eblin, M. R. Bowman, J. K. Balogh, E. E. Good, R. G. Jaap

RALPH W. DEXTER, *Chairman*

REPORT OF DIRECTOR OF VISITING SCIENTISTS PROGRAM

1. The Program has been well received.

By the end of the 1962-3 visitation period, we shall have made about 450 visits to 425 schools in 84 counties. Our scientists will have spoken to more than 90,000 students.

The severity of the winter caused the cancellation of some visits.

2. The Program has been successful.

Although we have a very large number of favorable comments from the schools and from the scientists who made the visits, the best proof of our success is perhaps in the growth of our program, as indicated in this table.

	1960-1	1961-2	1962-3
Number of Visiting Scientists	139	256	348
Number of Visits made	200	367	450 (estimate)

3. The outlook for next year is good, but NSF funds will be inadequate.

Based on our experience of the last three years, as indicated in the preceding paragraph, we should expect at least 600 requests for visits in 1963-4.

Our NSF grant for 1962-3 (\$23,000) will not cover the 1962-3 expenses, but since our 1961-2 grant was not all used by July 1, 1962, and since the grant period was extended until December 1962, we shall close the 1962-3 season without a deficit.

For 1963-4 our grant was cut to \$22,000 because NSF funds were low. This means we must find some additional financial support or cut back our program. We plan to raise enough money to maintain a full program.

W. A. MANUEL, *Director*

REPORT OF THE COMMITTEE ON INSTITUTION AND CORPORATION MEMBERS

During the past year, there were three resignations and five additions to our Institution-Foundation-Corporation group. There are at present thirty-seven organizations which contribute one hundred dollars or more to Academy activities.

In appreciation for this important support, we recognize the following:

Institution Members

Antioch College
Baldwin-Wallace College
Battelle Memorial Institute
Bowling Green State University
Case Institute of Technology
Central State College
Cleveland Regional Council of Science Teachers
Columbus Technical Council
Denison University
Kent State University
Marietta College
Miami University
Ohio Northern University
Ohio State University
Ohio University
Ohio Wesleyan University
University of Cincinnati
University of Dayton
University of Toledo
Western Reserve University
Wilmington College

Corporation Members

American Optical Company
Champion Spark Plug Company
Columbus and Southern Ohio Electric Company
General Motors Corporation
The C. P. Hall Company
Marathon Oil Company
The Mead Corporation
The National Cash Register Company
North American Aviation, Inc.
Ohio Bell Telephone Company
Ohio Fuel Gas Company
Republic Steel Corporation
Western Electric Corporation

Foundation Members

American Association for the Advancement of Science
The Charles F. Kettering Foundation
National Science Foundation

S. N. HALLOCK, II, *Chairman*

REPORT OF THE COMMITTEE ON EDUCATION TO THE COUNCIL OF THE OHIO ACADEMY OF SCIENCE

1. Your committee on education was formed for the purpose of devising ways and means of improving education, particularly science education, in the State of Ohio. After discussing various possibilities, the committee decided that the most urgent matter for consideration was the implementation of the recommendations concerning the certification of science teachers which were accepted by the council on May 3, 1962.

2. After several meetings of the committee, including a meeting with some School Superintendents, and discussions with faculty members in Education Departments of our various institutions, we concluded that the previous recommendations were not realistic for adoption at present. Nevertheless, we believe that the above mentioned recommendations are worthy of our support for ultimate acceptance, sometime in the future.

3. We decided that our main effort should be placed on the improvement of certification requirements for existing science teaching fields rather than replacing them with one 60 semester hour comprehensive science major as recommended in last year's report. We therefore recommend the following changes in certification requirements for teaching science in the secondary schools of Ohio.

		<i>Present Code</i>
Science (Comprehensive major).....	45 Sem. Hrs.	45 Sem. Hrs.
1. Biology (Botany and Zoology), Chemistry and Physics distributed as follows: 20 semester hours in one science and a minimum of 11 semester hours in each of the other two sciences.		
2. Additional work in geology and astronomy is strongly recommended.		
3. Certification given in general science and in each science having a minimum of 11 sem. hrs.		
Physical Science.....	32 Sem. Hrs.	21 Sem. Hrs.
1. Basic courses in chemistry and physics with a minimum of 12 semester hours in each area.		
2. Certification given in chemistry and physics.		
Biological Science.....	24 Sem. Hrs.	15 Sem. Hrs.
1. Introductory work in biology and/or botany and zoology; additional advanced courses in both botany and zoology.		
2. Certification given in biology or botany and zoology.		

General Science.....	32 Sem. Hrs.	21 Sem. Hrs.
1. Basic courses in biology (botany and zoology), chemistry, physics and geology or astronomy.		
2. Certification given in general science <i>only</i> .		
Earth Science.....	23 Sem. Hrs.	15 Sem. Hrs.
1. Geology.....	11 Sem. Hrs.	
Including introductory course and geomorphology.		
Astronomy.....	6 Sem. Hrs.	
Principles of Geography.....	3 Sem. Hrs.	
Meteorology or climatology.....	3 Sem. Hrs.	
2. Certification given in earth science <i>only</i> .		
4. We wish to emphasize to all Colleges and Universities in Ohio that these requirements represent <i>only the minima</i> for certification. Institutions are urged to strengthen teaching fields by setting requirements beyond the state minima, to further improve the academic backgrounds of prospective teachers.		
5. We recommend that copies of this report be forwarded to Deans and Chairmen of Education Departments at all institutions preparing teachers in Ohio.		
6. We recommend that the Committee on Education be a continuing committee. There is much work to be done in improving science education. If possible, a member or members of the present committee should be appointed to next year's committee to provide continuity.		
	E. H. BUSH, <i>Chairman</i>	

REPORT OF THE RESOLUTIONS COMMITTEE

Whereas, the courtesies shown to the Academy have been shared by the entire college community,

Be it resolved, therefore, that the Academy extend a vote of thanks not only to the members of the Science Department who spearheaded the local effort but also to the distinguished President of Central State College, Dr. Charles Wesley, to the administrative staff, to other faculty members, and also to the many students who, at every turn, have demonstrated their cordial welcome to the campus visitors.

Be it resolved, also, that a special vote of thanks go to Dean John H. Cooper, whose untiring effort has done so much to insure the success of this Annual Meeting, but who, because of illness, has been unable to attend this annual session.

Be it resolved, also, that particular commendation be extended to Dr. Oscar Woolfolk who so efficiently completed arrangements for the meeting following Dean Cooper's illness.

Be it resolved, further, that appreciation be extended to Central State College for the very generous entertainment of Council members and their ladies at dinner on Thursday, April 25.

Whereas, moreover, the singular accomplishments of the Academy during the current year are due, in large measure, to the work of its officers,

Be it resolved that members of the Academy give to President Kenneth E. Caster, to Secretary George W. Burns, and to the Treasurers, Robert M. Giesy, III, and Richard S. Davidson, special thanks for services ably performed, and

Be it resolved, further, to commend Executive Secretary John H. Melvin for the efficient manner in which he has continued to direct the affairs of the Academy, and

Be it resolved, also, that the Academy recognize especially the extraordinary effort of Dr. William A. Manuel as Director of the Visiting Scientist Program;

Be it resolved, further, that Professor Gerald Acker, Director of the Junior Academy, be commended for his success in stimulating better science instruction at the secondary school level.

A. G. LINSCHIED, *Chairman*

REPORT OF THE ADVISORY COMMITTEE TO THE GOVERNOR

Although seemingly a dead committee, efforts have been made all this year to establish direct channels between the Academy and the Governor and his cabinet. The executive office and the committee chairman both have taken steps to contact Governor DiSalle and then Governor Rhodes. Good discussions have been had with both cabinets, but the change in administration necessitated starting all over. Meetings and letter contacts have been made with Fred Morr, Department of Natural Resources; George Wilson, Industrial Development; John Stackhouse, Department of Agriculture; and Warren Chase, Department of Commerce. The present governor expressed interest and referred us to Mr. Wilson.

It appears from these talks that our contacts will be with members of the cabinet and that they will want to draw on the Academy for advice from time to time. Our Academy Committee in turn will call on members whose expertness qualifies them to assist the cabinet. Formal committee meetings will be needed only rarely to crystallize our relationship to the cabinet.

It is recommended that the name of this special committee be changed to "Government Advisory Committee" in view of its continuing contacts with the cabinets.

In addition the committee and the executive office of the Academy are following pending legislation which may affect science and scientists in Ohio. We may be able to initiate our own action in this field, and, through the Executive Committee of the Academy, to make some recommendations to legislators and to the departments. It is our intention to proceed cautiously along these lines.

R. P. GOLDTHWAIT, *Chairman*

REPORT OF THE CONSTITUTION COMMITTEE

The Constitution Committee, composed of four past presidents, Guy-Harold Smith, Richard P. Goldthwait, Dwight M. DeLong, and Glenn H. Brown, Chairman, presented extensive amendments designed to modernize the Academy Constitution and By-Laws.

These changes were adopted by Council at its meeting on December 1, 1962, and approved by the members of the Academy at the Annual Business Meeting on April 26, 1963, as outlined in the Official Program.

The complete Constitution and By-Laws, printed at the end of this report, incorporates these changes.

GLENN H. BROWN, *Chairman*

REPORT OF THE EXECUTIVE SECRETARY

We have just reviewed the successful activities of the past year which are the result of much time, effort, and ability contributed by hundreds of our dedicated members.

Failures, as in any organization such as ours, can only be attributed to the Executive Secretary.

If the din of success masks the groans of failure, be not deceived. The Executive Secretary knows where improvement should be made and eternally strives toward complete accomplishment. This goal, alas, is never reached; only progress can be reported.

JOHN H. MELVIN, *Executive Secretary*

REPORT OF THE NECROLOGY COMMITTEE

Herewith follows a list of the members of the Ohio Academy of Science whose deaths have occurred during the period April, 1962, to April, 1963.

Dr. Norris D. Blackburn, Associate Professor of Entomology, Pennsylvania State University, died at his home in State College, Pa., on June 7, 1962.

He was born in Coal Run, Noble County, Ohio, on October 10, 1902. He received the B.S. degree at The Ohio State University in 1929 and the M.A. degree in 1940. He served as instructor in the high schools of Beverly, Ohio, and Sistersville, West Virginia, until his appointment as assistant entomologist at the Ohio Agricultural Experiment Station in 1940. He continued advanced study and received the Ph.D. degree at The Ohio State University in 1944. He remained at the Ohio Agricultural Experiment Station until 1947. His work there was largely in biological control and insect ecology. In 1947 he was appointed Associate Professor of Entomology at Pennsylvania State University, at which post he remained until the time of his death. At Pennsylvania State, his work was with insecticides and forage and forest insects. He was an enthusiastic investigator and congenial co-worker.

He was a member of The Ohio Academy of Science, Section A; A. A. A. S.; Entomological Society of America; American Association of Economic Entomologists; and American Association of University Professors.

Survivors are his wife, Ruth, whom he married in 1930, and a daughter, Mary Louise (Mrs. James Bartholomew).

Mr. Charles Lee Brass, Technical Assistant in Entomology at The Ohio State University, died at his home in Columbus on October 6, 1962.

He was born in Clarksburg, West Virginia, on July 21, 1920, the son of Rudolph and Elsie Brass. He attended school in Clarksburg and graduated from the Washington Irving High School there in 1939.

He received his B.S. degree from The Ohio State University in 1957 and an M.S. degree in Entomology in 1958 from the same school. At the time of his death he was working toward a Ph.D. degree. He had served as Entomology technician for the O. S. U. Department of Zoology and Entomology since 1958.

He entered military service in the Medical Corps, U. S. A., in 1942 and rose through the ranks of Surgical Technician, Master Sgt., 2nd. Lt., and 1st Lt. in the Medical Service Corps during his period of service from 1942 to 1954. Prior to his army service he had been a 1st. Lt. in the Salvation Army from 1940 to 1942. Upon leaving the Army in 1954 he entered The Ohio State University.

He was a member of Section A of The Ohio Academy of Science and of the Columbus Entomological Society. He served both as Secretary and President of the latter organization.

Surviving are his widow, the former Alice Jane Elkin, whom he married in 1949; his mother, Mrs. Elsie Brass, and one sister.

Burial was on October 11, 1962, in the family cemetery located on the Brass Family Farm near Spencer, West Virginia.

Mr. E. Sanford Keairns, Director of the Davis Firebrick Research Center, died on February 15, 1962, at Holzer Hospital, Gallipolis, Ohio.

He was born on February 15, 1910, the son of Everett E. and Lola Schellenger Keairns in Hamilton Twp., Jackson Co., Ohio. He graduated from Jackson, Ohio, High School in 1928.

He received his B.S. degree in Chemistry from Ohio University in 1932 and the M.S. degree in 1938. He also did some advanced study at The Ohio State University.

He served as head of the Science Department in Jackson, Ohio, High School from 1932 to 1952. He was active there not only in science but as Hi-Y and 4-H leader and advisor for the school Annual. He left teaching in 1952 to enter industry and served as chemist for the Globe Iron Co. and the Interlake Iron Co. from 1952 to 1961. During 1961 and 1962 he was with the Cambria Clay Products Co.

He was a member of The Ohio Academy of Science, Section G; American Chemical Society; A. I. M. E.; American Foundrymen; and Jackson County Engineers.

He was active in civic, educational, religious and hobby groups in the Jackson area. He held membership in the Ohio Educational Association, the National Educational Association, Lions International (Past Governor), Camera Club, Ohio Covered Bridge Association. He served on the Jackson City Library Board and was a member and elder-elect of the Presbyterian Church of Jackson.

Surviving are his widow, the former Viola Hulda Fritz, whom he married in 1933; a daughter, Sandra K. Wallace of Pitcairn, Pa.; a son, Lowell Henry Keairns of Columbus, Ohio; and two grandchildren, Lesa and Lee Palmer Wallace.

Funeral services were from the Presbyterian Church in Jackson with burial in the cemetery at Jackson, Ohio.

Dr. Arthur Ward Lindsey, 69, professor-emeritus of biology at Denison University, Granville, died of a heart attack on the street in Lancaster, O., following an attack of influenza March 8. Funeral and burial took place in Lancaster.

Born in Council Bluffs, Ia., he graduated from high school in Sioux City, Ia., and took his A.B. from Morningside College there. He returned there as assistant professor of biology in 1921-22, and in 1946 was recipient of the honorary Doctor of Science degree.

He earned M.S. and Ph.D. degrees from the State University of Iowa in 1917 and 1919, respectively.

His first position was that of curator of the Barnes Collection of North American Lepidoptera in Decatur, Ill., 1919-21. He joined the faculty of Denison University in 1922 as professor of zoology and chairman of the department. In 1940 he was made professor and chairman of biology, a post he held until 1954 when he became senior professor of biology until his retirement in 1960.

He was author of *Textbook of Evolution and Genetics*, 1929; *Textbook of Genetics*, 1932; *Problems of Evolution*, 1936; *Science of Animal Life*, 1937; and *Principles of Organic Evolution*, 1952.

In 1938 he wrote the zoological section of Van Nostrand's *Scientific Encyclopedia*. He served as a member of the editorial staff of the *Annals of the Entomological Society of America*, 1939-48, during the last three years of which he was managing editor. In 1948 he was co-author of *American Sporting Dogs*, published by D. Van Nostrand Co. In 1950 he wrote *College Teaching and Christian Values*, published by the Association Press.

He was a member of Sigma Xi, a Fellow of the Entomological Society of America, and served The Ohio Academy of Science as president in 1947-48.

Mr. Ronald C. Runkle, science instructor at John Adams High School of Cleveland, died of a heart attack at St. Luke's Hospital, Cleveland, June 8, 1962.

He was born on July 25, 1904. He received an A.B. degree from Ohio University in 1928 and an M.A. degree from Columbia University in 1940.

He taught at Peebles, Ohio, from 1924 to 1926, and at John Adams High School, Cleveland, from 1928 until the time of his death. He was a member of Section C of The Ohio Academy of Science, of the Ohio Education Association, the Cleveland Education Association, and Northeastern Ohio Teachers Association. He was President of the Cleveland Education Association from 1957-1960, a member of the Executive Committee of the Northeastern Association, and a member of the Professional Standards Committee of the Ohio Education Association at the time of his death.

Surviving are his widow, the former Edith Fleming; a daughter, Mrs. Carole Watson of Traverse City, Michigan; and his mother, a sister, and a grandson.

Sister Ignatius Sanche, Ph.D., Chairman of the Chemistry Department of the College of Mount St. Joseph on-the-Ohio, died June 6, 1962, at Good Samaritan Hospital, Cincinnati, Ohio.

Sister Ignatius was born December 23, 1896, in Windsor, Ontario, Canada. After graduation from the Academy of Mount St. Joseph, she entered the Sisters of Charity, May 10, 1915. She received her A.B. degree from Creighton University in Omaha, Nebraska, and taught high school in Denver, Colorado, 1920-27. Sister Ignatius then attended the University of Cincinnati where she earned her Master's degree; in 1933, she received the degree of Ph.D. in chemistry from the University of Cincinnati. While studying there she attained the special honor of University Scholar. Sister Ignatius did some postdoctoral work at St. Louis University. Her research interest was in the field of stereo-chemistry of carbon compounds.

In 1933, she became professor and chairman of the Department of Chemistry at the College of Mount St. Joseph-on-the-Ohio. She held this position until her death in 1962. During her years as chairman of the department, she was well known for her enthusiastic teaching of chemistry, the pursuit of scholastic excellence and the promotion of the general objectives of her college—the development of the *whole person*. She forsook the expansion of the department and planned the chemistry facilities in the new Science Hall which was nearing completion at the time of her death.

Sister Ignatius was active in many scientific societies. She was elected a member of Sigma Xi, Cincinnati Chapter, in 1933; she was a Fellow of the American Association for the Advancement of Science; a member of Iota Sigma Pi, Radium Chapter; a member of the American Chemical Society; and a member of The Ohio Academy of Science.

The funeral of Sister Ignatius was held at Mount St. Joseph, and she is buried in the cemetery of the Sisters of Charity at Mount St. Joseph, Ohio.

Dr. Royal Eastman Shanks, Professor of Botany at the University of Tennessee, died at Port Limon, Costa Rica, on August 4, 1962, while engaged in botanical research in that area.

He was born in Ada, Ohio, on November 11, 1912. He received his A.B. degree from Ohio Northern University in 1933, the M.S. degree from The Ohio State University in 1937 and the Ph.D. degree in Botany from the same school in 1938.

He was an assistant in Botany at The Ohio State University from 1936 to 1939 and served as instructor in Botany there in 1939. He was associated with the New York State Museum until 1942 as botanist and plant ecologist. He joined the staff of the Botany Department of the University of Tennessee in 1940 as assistant professor, became associate professor in 1946 and was advanced to Professor in 1948 and served in this capacity until his death.

He was a Fellow of the A. A. S.; The Ohio Academy of Science, Section B; and the Tennessee Academy of Science. He also held membership in the Ecological Society of America (Treasurer 1940–42); Association of Southeastern Biologists (President 1961–62); and Southern Appalachian Botanical Club (President 1951). He served as a member of the Screening Panel on International Exchange of Persons in Biology and Agriculture under the Fulbright and Smith-Mundt Programs.

Surviving are his widow, the former Betty Morris, whom he married in 1935, and two daughters, Harriet and Emily Shanks.

He was an elder and member of the Lake Forest Presbyterian Church of Knoxville, Tennessee. Funeral services and burial were at San Jose, Costa Rica.

Mr. Pierre Reublin Smith, investment broker of Elyria, Ohio, died at Elyria on November 5, 1961.

He was born September 4, 1898, the son of Charles J. and Hattie Reublin Smith in Elyria, Ohio. He attended public schools of Elyria and graduated from Elyria High School.

He received the baccalaureate degree from Oberlin College. He served in the S. A. T. C. during 1918–19.

Later he established the Pierre R. Smith & Co., Investment Brokers of Elyria, and continued in the business until the time of his death. He was a member of The Ohio Academy of Science, Section J, since 1952. He was a member of the Elyria, Ohio Board of Education for 18 years. He was active in civic affairs in his home city and was a 32nd degree Mason.

Survivors are his wife, the former Ethyl Mildred Snyder; two sons, Dr. Thomas C. and John F.; a daughter, Harriett Jane Furumoto; and a sister, Miss Geraldine Smith.

He was a member of the First Congregational Church of Elyria. Funeral services were held in Elyria and burial was in Brookdale Cemetery in that city.

Dr. Alva Thompson, Associate Supervisor of Research, The Ohio State University Research Foundation since 1958, died in an automobile accident in Darke County, Ohio, on May 8, 1962.

He was born June 23, 1905 at Ridge Farm, Illinois, the son of Albert M. and Grace Thompson. He lived in Ridge Farm during his youth and graduated from high school there.

He received his B.A. degree from Wabash College, Crawfordsville, Indiana, and entered The Ohio State University in 1927. There he served as a chemistry assistant from 1927 to 1931 while completing M.S. and Ph.D. degrees.

He worked as a research chemist with the Miner Laboratory of Chicago for a period and then moved to Sioux Falls College, Sioux Falls, S. D., as chemistry professor from 1939–41. He returned to The Ohio State University as a Research Foundation Fellow in 1944 and served with the Foundation as Research Associate and Associate Supervisor of Research until his death in 1962.

He was elected to Phi Beta Kappa at Wabash College and to Gamma Alpha and Sigma Xi at The Ohio State University.

He was a member of the A. A. S.; the American Chemical Society; The Ohio Academy of Science, Section G; and of the New York Academy of Science.

Surviving are his widow, the former Nellie March Dunham to whom he was married in 1930; his mother, Mrs. Grace Thompson; a sister, Clare Landis, and a brother, Gordon Thompson.

He was a member of the first Baptist Church of Columbus, Ohio. Funeral services were held in Columbus with burial in Union Cemetery in Columbus.

W. C. STEHR, *Chairman*